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***Sericosura dissita*, n. sp., a Third Hydrothermal Vent Pycnogonida Described from the Northeast Pacific, and Other Known Vent Species**

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Three species of hydrothermal-vent-associated pycnogonids were collected from a feature described as a clump of vent substrate with tubeworms found along the Endeavour Segment of the Juan de Fuca Ridge in the Northeast Pacific. Two of the species are known, having been described from vents in the same vicinity, while the third is a new species, *Sericosura dissita*. The new species is described, illustrated, and compared with another vent-associated *Sericosura* species, while the two known species in this collection are diagnosed and their distributions are given.

Key Words: Pycnogonida, hydrothermal vents, Northeast Pacific, *Sericosura dissita*, *Sericosura venticola*, *Ammothea verenae*.

A hydrothermal vent structure or clump of tubeworms was removed from one station at the Easter Island Vent site on the Endeavour Segment of the Juan de Fuca Ridge in the Northeast Pacific (pers. comm.). It was collected for purposes of quantitative examination and identification of its fauna. Among the extensive fauna were approximately one thousand pycnogonids. Almost 200 of these specimens were sent to me for examination and deposit in the National Museum. Among the specimens, six were discovered to belong to a new species, *Sericosura dissita*, described herein. Two other known species were present in much greater numbers and are also reported.

Family **Ammotheidae**
Genus ***Ammothea*** Leach, 1814
Ammothea verenae Child, 1987

Ammothea verenae Child, 1987: 892-896, fig. 1; Stock 1991: 158 [text]; Child 1994: 5, 7; Child and Segonzac 1996: 665, fig. 1; Child 1997: 164.
Scipiolus thermophilus Turpaeva, 1988: 950-953, figs 1-2.

Material Examined. Approximately 120 males (many with eggs), females (some ovigerous), and juveniles, Endeavour Segment, Easter Island Vent site, 47°57'N, 129°06'W, 2200 m, coll. DSRV *Alvin*, sta. 3138, 13 Sept. 1997.

Distribution. This species is known from several sites along the Juan de Fuca Ridge: Endeavour Segment (types), Explorer Ridge, Axial Seamount, and the

southern Juan de Fuca Ridge, in 1570-2225 m. It has also been found off northern California in about 3500 m, its deepest known depth. The present specimens were collected in the vicinity of the type locality.

Diagnosis. Trunk compact, ovoid, neck moderately long, tapering from broad anterior rim. Ocular tubercle low, usually as tall as wide, sometimes bifurcate at tip. Proboscis broad, with proximal downward curve, at least one suture visible, sometimes two. Abdomen long, downcurved. Chelifore scapes little longer than wide, chelae mere bumps. Palps 9-segmented, slender, first segment very broad. Oviger strigilis with many ectal setae (male) and short spines, one or two endal denticulate spines. Legs dimorphic, male with field of many ventral setae on third coxae and rows of short setae on long segments. Female legs with few short setae placed in rows on all segments and increasing in numbers on distal segments. Propodi of all legs equal, with row of short spines on sole, without larger spines. Main claw less than half propodal length. Auxiliary claws almost as long as main claw. Cement gland tube not found.

Remarks. This is the most common pycnogonid found in the vicinity of hydrothermal vents of the Juan de Fuca Ridge and its offshoots, according to the numbers of specimens collected. Ovigera on the majority of male specimens in this collection bear a surprising number of egg clusters. There seems to be no logical explanation for this concentration of egg-carrying males and of egg clusters except for the conjecture that a high concentration of vent bacteria as available food might contribute to the fecundity of this population. Many of these specimens are lightly to heavily encrusted with what appear to be dark brown sulfide deposits.

Genus *Sericosura* Fry and Hedgpeth, 1969

Sericosura venticola Child, 1987

Sericosura venticola Child, 1987: 896-899, fig. 2; Stock 1991: 158-159 [text]; Child 1997: 164.

Sericosura venticola? - Child and Segonzac 1996: 666 [key], 673-674.

Material Examined. Approximately 50 males (many with eggs), females (some ovigerous), and juveniles, Endeavour Segment, Easter Island Vent site, 47°57'N, 129°06'W, 2200 m, coll. DSRV *Alvin*, sta. 3138, 13 Sept. 1997.

Distribution. The species is known from two adjacent localities, one for the holotype, and an adjacent locality for the paratypes. The vents are very near the type locality for *Ammothea verenae*. It is also possibly known from a questionable juvenile specimen collected on a vent site north of Easter Island (unrelated to the vent site where the present collections were made) in the SE Pacific at 2578 m.

Diagnosis. Typical of the closely related *Sericosura* group of species (see Key to the species: Child and Segonzac 1996: 666-667). Trunk a broad oval, lateral processes short, little longer than their width, separated by much less than their diameters. Ocular tubercle slightly taller than wide, lateral sensory papillae prominent, blind. Proboscis moderately broad, oval, without lateral suture lines, carried horizontally.

Chelifore scapes twice as long as their diameters, chelae small knobs. Palps 7-segmented, terminal segment twice as long as short 5th or 6th segment, with many

short ventral setae. Ovigerae moderately short; 2nd segment longest; 4th and 5th subequal; 6th inflated, with field of many lateral setae little longer than segment diameter; 7th and 8th segments with fewer lateral setae; distal 3 segments with 2, 1, and 2 denticulate spines. Legs (male) with setae rows on major segments and fields of short setae on 3rd coxae and adjacent proximoventrally on femora. Cement gland a short, laterally-pointing tube arising from tiny swelling on proximodorsal surface of each femur. Legs (female) dimorphic with those of males: without fields of setae and with fewer and scattered setae overall.

Remarks. The females of this collection are the first reported and afford an opportunity to describe the sexual dimorphism in leg setation of this species. Male legs are much more setose ventrally on the third coxae and proximally on the femora. These groupings or fields of setae are lacking on female legs. Leg segment lengths of *S. venticola* are the same between male and female except that the femora of females are slightly longer. All propodi are equal in length and size in both sexes, unlike males of *S. heteroscela* Child and Segonzac, 1996. In this latter species, the posterior four propodi of the male are grossly inflated and are more than twice as large as the anterior four. Both male and female specimens of any *Sericosura* species are not always available for comparison, but where they are, the legs are from slightly to grossly sexually dimorphic in setae and spine count and sometimes in other characters such as propodal size and shape.

***Sericosura dissita*, new species**
(Fig. 1)

Material Examined. Holotype male with eggs (USNM 234739), Endeavour Segment, Easter Island Vent site, 47°57'N, 129°06'W, 2200 m, coll. DSRV *Alvin*, sta. 3138, 13 Sept. 1997. Paratype male with eggs, 4 females (USNM 234740).

Distribution. Known only from its type locality on the Juan de Fuca Ridge, at the Easter Island Vent site in 2200 m. This new species comes from near the type localities of the above two species.

Description. Size typical of vent species of *Sericosura*: leg span 23.1 mm. Trunk ovoid, slender, neck short, greatly expanded at anterior. Ovipiger bases massive, placed just anterior to first lateral processes. Lateral processes as long as 1.5 times their diameters and distally separated by at least their diameters. Each armed with single anterolateral and posterolateral spines on anterior four, and single anterolateral spine only on posterior four. Ocular tubercle triangular in lateral view, with conspicuous lateral sensory papillae atop small tubercles creating bifurcate tip. Eyes lacking. Proboscis an inflated oval without lateral segmentation lines, carried slightly below horizontal. Abdomen distally inflated, carried slightly downcurved, almost reaching distal tip of second coxae, armed with pair of very short distal spines.

Chelifores short, scapes less than twice longer than their diameters, slightly swollen in dorsal view, armed with several short distal setae. Chelae are rounded knobs. Palps 9-segmented, fourth segment with wider proximal diameter, narrowing distally, the two areas separated by hint of suture line suggesting two segments. Fifth segment slightly longer than each of four distal segments which are subequal and each armed with fringe of many ventral setae longer than their seg-

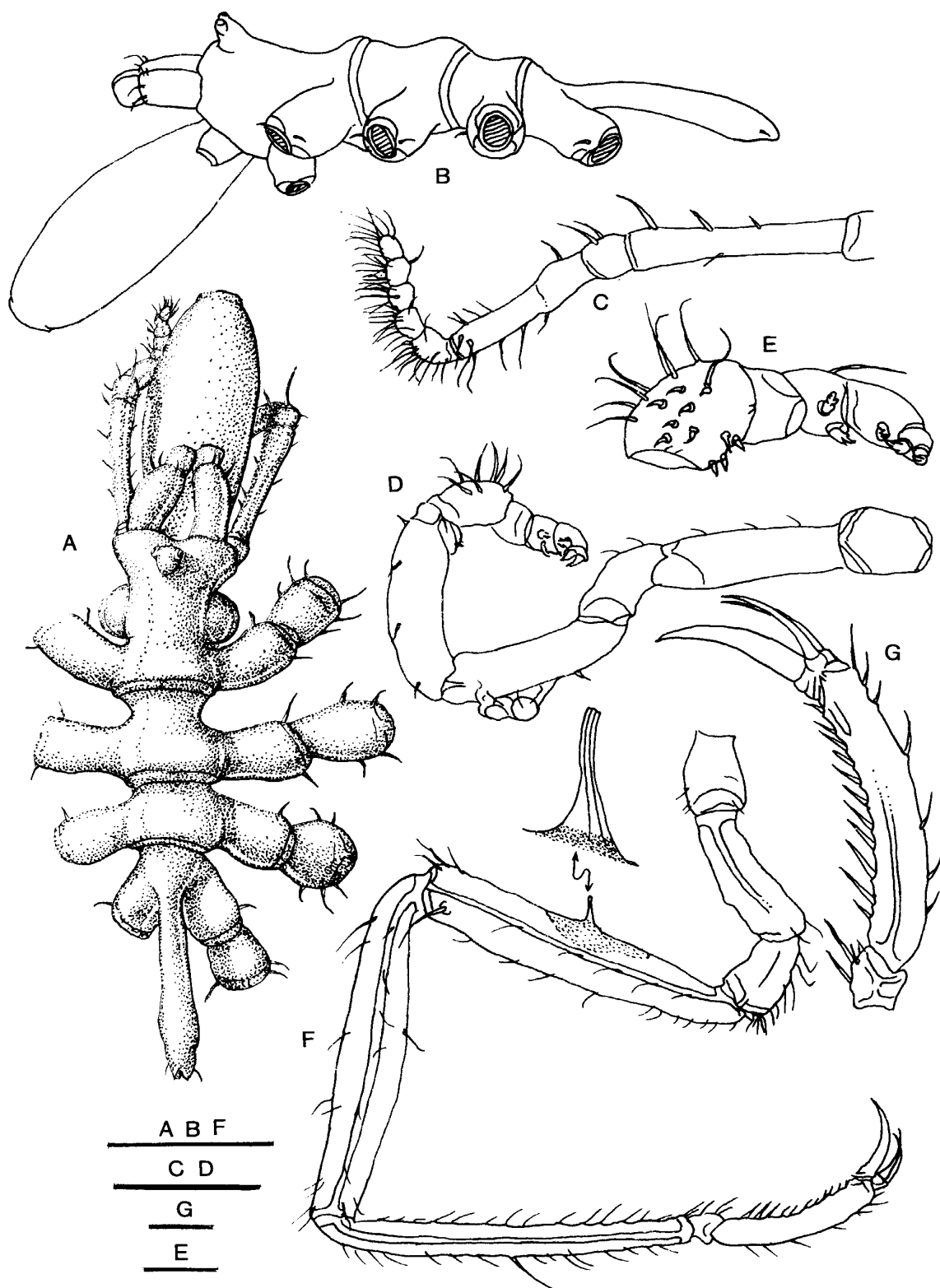


Fig. 1. *Sericosura dissita*, new species, holotype male: A, trunk, dorsal view; B, trunk, lateral view; C, palp; D, ovipiger; E, distal ovipiger segments, enlarged; F, third leg, with enlargement of cement gland tube; G, tarsus, propodus, and claws of third leg, enlarged. Bars A, B, F=1 mm; C, D, G=0.5 mm; E=0.25 mm.

ment diameters. Oviger 10-segmented, second segment slightly shorter than fifth segment, second to fifth armed with few short lateral spines. Sixth segment inflated and armed with 8-9 long lateral setae and many short recurved spines, seventh glabrous, eighth through tenth armed with short endal denticulate spines in formula 2: 1: 2.

First coxae of legs armed with few tiny dorsodistal and few longer lateral setae, second coxae with few short ventrodistal setae, third with 8-9 short ventral setae, mostly distal. Main segments of legs with few short setae in rows, except for longer laterodistal setae on femora and tibia 1, and lacking long dorsodistal seta. Femoral cement gland at midfemur length with its outlet a conspicuous, erect, tapering tube. All propodi of equal size and setation. Tarsus very short, armed with two longer sole spines and 3-4 shorter lateral spines, propodus with 3-4 heel spines of varying length, 8-9 sole spines, few short dorsal setae, and well curved claw having auxiliaries of about 0.75 its length.

Female differences. Size very slightly larger than in males, legs very similar with fewer lateral and ventral setae not in fields or clumps, femora slightly shorter in length than those of males.

Measurements of male holotype in mm. Trunk length (chelifore insertion to tips of 4th lateral processes), 2.52; trunk width (across 2nd lateral processes), 2.08; proboscis, 1.94; abdomen, 1.22; third leg, coxa 1, 0.53; coxa 2, 1.0; coxa 3, 0.64; femur, 2.14; tibia 1, 2.32; tibia 2, 2.17; tarsus, 0.22; propodus, 1.03; claw, 0.47.

Etymology. The name proposed for this species (Latin: *dissitus*, meaning distant or apart) refers to the cement gland tube which is relatively distant or apart from the location of the tiny dorsodistal tube or pore in species of the most closely related genus, *Ammonothea*, and even more distant from the proximal tube of all other known males of *Sericosura* species.

Remarks. It would be difficult to call these specimens anything except *Sericosura*, even though the conspicuous femoral cement gland tube is not in its usual proximal place. All other characters are very close to those of several other look-alike species in this genus. It is more like a species of *Sericosura* than like the only known vent-associated *Ammonothea*, *A. verenae* Child, 1987. The present species is, therefore, the only known species of *Sericosura* to have a “misplaced” cement gland and tube. Stock (1991: 159) stated that the only clear difference between males of the two genera is the placement of the cement gland and its tube. The discovery of this new species calls for a redefinition of this apparently transitional genus. The new species has several characters of the above two genera along with some from *Cilunculus* and some additional characters must be found with which to differentiate the species. Differences among these genera become more strained and confused as additional species come to light. In agreement with Stock (1991), several of these genera in the family Ammonotheidae need a thorough reexamination and evaluation of their characters to formulate better definitions of each.

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